

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 1. (Currently amended): An error correction coding method for use with an
2 error correction coding apparatus, comprising the steps of:
3 subdividing data which includes data of a plurality of sectors, ~~to produce~~
4 ~~subdivided data;~~
5 allocating the subdivided data in ~~an arrangement~~ a plurality of arrangements of
6 data;
7 coding each of ~~said arrangements~~ of data using a product code according to a code
8 V and a code H and thereby generating a plurality of product-code codewords; and
9 outputting code-H codewords of each of said product-code codewords in a
10 codeword-by-codeword manner in an alternating fashion for said plurality of product-code
11 codewords, ~~such that between data of the same sector of an outputted code H codeword, there~~
12 ~~does not exist a data of another sector~~
13 wherein data of each sector lies on a plurality of said code-H codewords, and
14 between the outputted data of each sector there does not exist data of another sector.

2 - 5. (Canceled)

- 1 6. (Currently amended): An error correction coding method for use with an
2 error correction coding apparatus comprising steps of:
3 subdividing data which includes a plurality of identifiers (IDs) data;
4 allocating the subdivided data in a plurality of arrangements of data;
5 coding each of ~~said subdivided arrangements~~ of data using a product code
6 according to a code V and a code H ~~to generate~~ thereby generating a plurality of product-code
7 codewords; and

8 outputting code-H codewords of each of said product-code codewords in a
9 codeword-by-codeword manner in an alternating fashion for said plurality of product-code
10 codewords, an order that each of said plurality of IDs exists at a predetermined interval in said
11 outputted code-H codewords
12 wherein said ID data exists at a predetermined interval in the outputted data.

7. (Canceled)

1 8. (Currently amended): An error correction coding apparatus, comprising:
2 means for subdividing data which includes data of a plurality of sectors;
3 means for allocating said subdivided data of said plurality of sectors in an in a
4 plurality of arrangements of data;
5 means for coding each of said arrangements of data using a product code
6 according to a code V and a code H and thereby generating a plurality of product-code
7 codewords; and
8 means for outputting code-H codewords of each of said product-code codewords
9 in a codeword-by-codeword manner in an alternating fashion for said plurality of product-code
10 codewords, such that between data of the same sector, there does not exist data of another sector
11 wherein data of each sector lies on a plurality of said code-H codewords, and
12 between the outputted data of each sector there does not exist data of another sector.

9 - 10. (Canceled)

1 11. (Currently amended): An error correction coding apparatus comprising:
2 means for subdividing data which includes a plurality of identifiers (IDs) data;
3 means for allocating the subdivided data in a plurality of arrangements of data;
4 means for coding each of said arrangements of data subdivided data of said
5 plurality of IDs using a product code according to a code V and A-a code H to generate thereby
6 generating a plurality of produce-code codewords; and

7 means outputting code-H codewords of each of said product-code codewords in a
8 codeword-by-codeword manner in an alternating fashion for said plurality of product-code
9 codewords, an order that each of said plurality of identifiers exists at a predetermined interval in
10 said code H codewords outputted
11 wherein said ID data exists at a predetermined interval in the outputted data.

12 - 17. (Canceled)

1 18. (Currently amended): An error correction decoding method for use in
2 with an error correction decoding apparatus comprising the steps of:

3 inputting data of code-H codewords code words with or without an error data, in
4 an order such that data of each sector lies on a plurality of said code-H codewords, and between
5 the outputted data of each sector there does not exist data of another sector among data of an
6 input data sector of said code H code words there do not exist data of sectors other than said
7 sector;

8 allocating said inputted data of code-H codewords in an arrangement of a plurality
9 of product-code codewords according to a code V and a code H in a codeword-by-codeword
10 manner in an alternating fashion for said plurality of product-code codewords with or without an
11 error data;

12 decoding said plurality of product-code codewords with said code V and said
13 code H thereby to correct error data in said arrangement; and

14 providing data of said plurality of sectors from among said plurality of
15 product-code codewords corrected.

1 19. (Currently amended): An error correction decoding method for use in
2 with an error correction decoding apparatus comprising steps of:

3 inputting data of code-H codewords with or without an error data and including at
4 a predetermined interval, a plurality of identifier (ID) data a plurality of identifiers IDs existing
5 at a predetermined interval in said code H codewords;

6 allocating said inputted data of code-H codewords in an arrangement of a plurality
7 of product-code codewords according to a code V and a code H in a codeword-by-codeword
8 manner in an alternating fashion for said plurality of product-code codewords with or without ~~an~~
9 error data; ~~and~~

10 decoding said plurality of product-code codewords with said code V and said
11 code H thereby to correct error data; ~~and~~

12 providing data including said plurality of ID data from among said plurality of
13 product-code codewords corrected within said arrangement.

1 20. (Currently amended): An error correction decoding apparatus[[],]
2 comprising:

3 means for inputting data of code-H codeword~~seed words~~ with or without ~~an~~ error
4 data in an order such that data of each sector lies on a plurality of said code-H codewords, and
5 between the outputted data of each sector there does not exist data of another sector, among data
6 of an input data sector of said code H codewords there does not exists data of other sectors of a
7 plurality of sectors than said sector;

8 means for allocating said inputted data of code-H codewords in an arrangement of
9 a plurality of ~~product code words~~product-code codewords according to a code V and a code H in
10 a codeword-by-codeword manner in an alternating fashion for said plurality of product-code
11 codewords with or without ~~an~~ error data;

12 means for decoding said plurality of product code words~~product-code codewords~~
13 with said code V and said code H thereby to correct error data in said arrangement; ~~and~~

14 means for providing data of said plurality of sectors from among said plurality of
15 product-code codewords corrected.

1 21. (Currently amended): An error correction decoding apparatus,
2 comprising:

3 means for inputting data of code-H codewords ~~code words~~ with or without ~~an~~
4 ~~error data~~ and including at a predetermined interval a plurality of ID data~~identifiers~~ ~~IDs~~ ~~existing~~
5 ~~at a predetermined interval in said code-H code words~~;

6 means for allocating said inputted data of code-H codewords in an arrangement of
7 a plurality of product-code codewords according to a code V and a code H in a codeword-by-
8 codeword manner in an alternating fashion for said plurality of product-code codewords with or
9 without ~~an~~ error data; and

10 means for decoding said plurality of product code words~~product-code codewords~~
11 with said code V and said code H thereby to correct error data; and

12 means for providing data including said plurality of ID data from among said
13 plurality of product-code codewords corrected within said arrangement.

1 22. (Currently amended): An error correction decoding method according to
2 claim 1, wherein the outputted data~~said code-H codewords~~ are stored in a storage.

1 23. (Currently amended): An error correction decoding method according to
2 claim 6, wherein said code-H code words are stored in a storage.

1 24. (Currently amended): An error correction decoding apparatus according
2 to claim 8, wherein the outputted data~~said code-H code words~~ are stored in a storage.

1 25. (Currently amended): An error correction decoding apparatus according
2 to claim 11, wherein the outputted data~~said code-H codewords~~ are stored in a storage.

1 26. (Currently amended): An error correction decoding method according to
2 claim 18, wherein the inputted data ~~are read from a storage~~ ~~data read from said storage is~~
3 ~~inputted in said error correction decoding apparatus~~.

1 27. (Currently amended): An error correction decoding method according to
2 claim 19, wherein the inputted data are read from a storage~~data read from said storage is inputted~~
3 ~~in said error correction decoding apparatus.~~

1 28. (Currently amended): An error correction decoding apparatus according
2 to claim 20, wherein the inputted data are read from a storage~~data read from said storage is~~
3 ~~inputted in said error correction decoding apparatus.~~

1 29. (Currently amended): An error correction decoding apparatus according
2 to claim 21, wherein the inputted data are read from a storage~~data read from said storage is~~
3 ~~inputted in said error correction decoding apparatus.~~